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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,961	08/04/2003	John J. Marra	F-7995	5186

7590 09/16/2004
Pratt & Whitney
400 Main Street, M/S 132-13
East Hartford, CT 06108

EXAMINER

HIRL, JOSEPH P

ART UNIT	PAPER NUMBER
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2121

DATE MAILED: 09/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/633,961	Applicant(s) MARRA ET AL.	
	Examiner Joseph P. Hirl	Art Unit 2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 19-38 are pending in this application.

Request for Information

2. Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application.

"Use of Knowledge-Based Engineering in Compressor Rotor Design" by John Marra, presented at the International Gas Turbine & Aeroengine Congress & Exposition, Houston, Texas, June 5-8, 1995 and published by ASME.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 19-38 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The language of the claim raises a question as to whether the claim is directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in a practical application

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producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U.S.C. 101. While the example is trivial, the claims can be implemented using a pencil and paper. The claims must be tangibly embodied in the technical arts which can be achieved through computer implementation wherein the methodology is embedded on a recordable media.

Product by Process

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 19-38 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Rice (U. S. Patent 4,896,499).

Claims 19-38 cite methodology for creating a model of a low pressure compressor rotor for a gas turbine engine. Further, on page 1 of the specification, @ lines 10-15 the following is cited:

This invention relates to computer-based methods of designing products, and more particularly to computer-based method of designing a multi-stage rotor for a low-pressure compressor (LPC), as used in a gas turbine engine.

As per MPEP 2113, such a disclosure is characterized as "Product-by-Process" and patentability is based on the product itself. Rice @ c3, l 43 anticipates a low pressure compressor.

Response to Arguments

8. Applicant's arguments filed related to Claims 19-38 have been fully considered but are not persuasive.

In reference to Applicant's argument:

Claims 1-18 were pending in the present application, and are canceled herewith and replaced with new claims 19-38. New independent claim 19 corresponds with a combination of former claims 1, 10, and 11; new independent claim 31 corresponds with a combination of former claims 1 and 16; and new independent claim 38 corresponds with a combination of former claims 1, 7, 8, and 9. The various claims depending from independent claims 19 and 31 each correspond with a former dependent claim, or a combination thereof. Applicants' attorney has chosen this amendment format as being the most expeditious in advancing the prosecution of the application.

Enclosed herewith is a copy of U. S. Patent 6,393,331 (the '331 patent) that issued from USSN 09/212,922 referred to in the IDS filed with the parent application USSN 09/469,147. This copy is in response to the Examiner's request in the 2/5/03 OA for such copy.

Examiner's response:

Examiner acknowledges comments regarding subject claim but notes that the current record does not contain an IDS.

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In reference to Applicant's argument:

It will be noted that Most of the original claims in the present application, and more particularly new independent claims 19 and 31 submitted herewith, are very similar to claims 1, 14, and others of the '331 patent. They differ principally in the fact that the method of the '331 patent was for creating a model of an outer air seal for a gas turbine engine, whereas the method of the present invention is for creating a model of a low pressure compressor rotor for a gas turbine engine.

Because of the similarities between the: claims of the present application and the '331 patent, both of which are assigned to United Technologies Corporation, it is deemed appropriate to file a terminal disclaimer in the present application, limiting the term of any resulting patent to the term of the '331 patent. Such terminal disclaimer is submitted herewith, with the appropriate fee, to obviate any possible obviousness double patenting rejection. Moreover, it should be noted that the invention of the present application was under obligation to be and was, assigned to the same assignee, United Technologies Corporation, as the '331 patent.

Examiner's response:

Examiner acknowledges the submission of a terminal disclaimer for the purposes cited. However, applicant is advised that while the subject claims have been reject on the basis of Product by Process, the same claims are subject to a rejection under 35 U.S.C. 102(a) using the prior art of '331.

In reference to Applicant's argument:

Common to each of the three new independent claims 19, 31, and 38 is the method of former claim 1 for creating a model of a low-pressure compressor rotor for a gas turbine engine. Each claim includes the steps of creating a knowledge base of information having a plurality of rules with respect to a corresponding plurality of parameters of associated elements of the rotor, with one or more data values for each of the rules; entering a desired data value for a selected one of the plurality of parameters of an associated element of the rotor; comparing the entered desired data value with the corresponding one or more data values in the knowledge base for the corresponding rule; and if the result of the comparison is such that the entered desired data value of the selected parameter is determined to have a first predetermined relationship with respect to corresponding one or more data values in the knowledge base for the selected rule, then creating a geometric representation of the selected one of the parameters of the rotor element.

Examiner's response:

Examiner acknowledges the three new claims citing methodology for the creation of a model of a low pressure compressor rotor for a gas turbine engine. Applicant

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should take note that the Examiner has an obligation to interpret each claim in the broadest reasonable manner.

In reference to Applicant's argument:

While both of the Marra articles (M_1 = An Expert System Eases Rotor Design; M_2 = Use of Knowledge-Based Engineering in Compressor Rotor Design) are concerned with the use of a knowledge base to facilitate the design of a compressor rotor for a gas turbine engine, it is respectfully submitted that those articles do not address the method of the invention with the specificity of the disclosure and claims of the present application.

Examiner's response:

Examiner is of the opinion that both of these articles bear relevance as prior art from the perspective that the articles do indeed outline the process, one of ordinary skill in the art fully understands artificial intelligence processes and the Examiner has the obligation to interpret each claim in the broadest reasonable manner.

In reference to Applicant's argument:

Further, to advance the prosecution of the present application, applicants have further limited the recitation of the fundamental method of the invention (previously recited in claim 1) by the claim language of new independent claims 19, 31, and 38. Claim 19 adds the limitations of prior dependent claims 10 and 11, to wit, the step of analyzing the created geometric representation, of the selected parameter of the rotor element, which further comprises the step of performing a durability analysis on the created geometric representation. Claim 31 adds the limitation of prior dependent claim 16, to wit, the provision of a further step of providing a file listing of a selected one or more of the plurality of parameters of the rotor element(s), and wherein the file listing includes at least one of the entered desired data values for each one of the corresponding plurality of parameters of the rotor elements. Claim 33, which depends from claim 31, provides that file listing as an input to a computer program for controlling parametric models of the design of the tooling for the manufacture of the rotor. Claim 38 adds the limitations of prior dependent claims 7, 8, and 9, to wit, that the rotor elements include a plurality of axially spaced rings that include spacer means for connecting and establishing the spacing between successive rings, the successive rings being connected by welds in successive spacer means, the spacer means between successive rings include a knife edge member, and the knowledge base includes rules for sizing the rings and for the placement of the welds relative to the knife edge members.

Examiner's response:

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From the Examiner's perspective, claim 19 is general enough to be anticipated by the Marra prior art. Further, a rejection under 35 U.S.C. 102(a) using the prior art of '331 follows after a Product-by-Process rejection.

In reference to Applicant's argument:

Applicants fail to find the disclosures and/or teachings of the M1 and M2 articles to be as specific as the claimed invention. Indeed, while the articles reveal progressive thinking in the design of rotor parts, it is respectfully submitted that they do not provide the thoroughness required for one to practice -the claimed invention without undue further experimentation and development.

Examiner's response:

Examiner is of the opinion that both of these articles bear relevance as prior art from the perspective that the articles do indeed outline the process, one of ordinary skill in the art fully understands artificial intelligence processes and the Examiner has the obligation to interpret each claim in the broadest reasonable manner.

In reference to Applicant's argument:

In the 2/5/03 OA, the Examiner chose to further rely upon "Official Notice" and/or the Kienzle et al reference (U. S. 5,297,054) to supplement such deficiencies. The reliance upon *Official Notice* was for the purpose of "bridging" the absence of specific teachings of various claimed specifics of rotor design, presumably as now appear in independent claim 38, as well as dependent claims 25 and 34. Applicants respectfully submit that the Examiner has postulated the well-known existence of these techniques and features in the prior art and usage, but has not provided convincing evidence of that. Moreover, while the Kienzle et al reference is indeed concerned with an expert system that employs knowledge-based techniques to automatically generate gearset designs, it does not appear to either disclose or suggest the specific steps of new claims 19, 31, and 38 that are concerned with the design of a low-pressure compressor rotor for a gas turbine engine. The Examiner states in the OA of 2/5/03 that "Kienzle et al discloses application of expert systems to turbine engines", yet that reference is focused on the designs of gears that may be used in various different applications, with the mention of use in turbine engines being only incidental and certainly not a disclosure of the design of a low pressure compressor rotor for a gas turbine engine.

Examiner's response:

Examiner acknowledges applicant's perspective and applicant will be given the full benefit of MPEP in support of the subject application. However, the applicant must fully recognize that the Examiner has the obligation to interpret each claim in the broadest reasonable manner. Official Notice will probably not be used in further examinations of this application but the position of non-obviousness as evidenced by Kienzle might be appropriate.

Conclusion

9. The prior art of record and not relied upon is considered pertinent to applicant's disclosure.

- Marra, ME Apr 1997
- Chetta et al, U.S. Patent 6,393,331
- Rice, U.S. Patent 4,592,204

10. Claims 19-38 are rejected.

Correspondence Information

11. Any inquiry concerning this information or related to the subject disclosure should be directed to the Examiner, Joseph P. Hirl, whose telephone number is (703) 305-1668. The Examiner can be reached on Monday – Thursday from 6:00 a.m. to 4:30 p.m.

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If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Anthony Knight can be reached at (703) 308-3179.

Any response to this office action should be mailed to:

Commissioner of Patents and Trademarks,

Washington, D. C. 20231;

or faxed to:

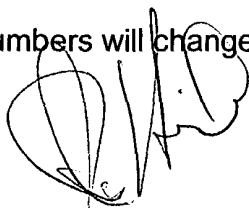
(703) 746-7239 (for formal communications intended for entry);

or faxed to:

(703) 746-7290 (for informal or draft communications with notation of

"Proposed" or "Draft" for the desk of the Examiner).

Note: During the last two weeks of October 2004, Art Unit 2121 will move to Carlyle, Randolph Building, 5th floor and my phone and fax number will change to: 571-272-3685 and 571-273-3685, respectively. Similarly, Anthony Knight's phone and fax numbers will change to: 571-272-3687 and 571-273-3687.



Joseph P. Hirl

September 15, 2004